



Figure 2-8
Proposed 14 Mile Road
Interchange

the ramp from northbound I-75 earlier (Figure 2-9).

Long Lake/Crooks Road Interchange

At Long Lake and Crooks Roads, there will be a new northbound exit to Long Lake Road and then a new northbound entrance from Long Lake Road. Rather than merge directly onto I-75 northbound, the new entrance from Long Lake Road will operate as a collector/distributor roadway (Figure 2-10). At Crooks Road there will be a eastbound-to-northbound loop in the southeast quadrant of the interchange. The existing ramp will be redesigned so that it will join the collector/distributor roadway, which will pass under the ramps bridge to Crooks Road. The westbound-to-northbound entrance from Crooks Road will then join the collector/distributor road, which will merge back into northbound I-75 some distance north of Crooks Road. Southbound on I-75 there will be a new exit to Crooks Road. A redesigned entrance from Crooks Road southbound to a collector/distributor road will terminate at Long Lake Road. The entrance to I-75 will occur directly across Long Lake Road as a conventional diamond-type on-ramp southbound.

Sashabaw Road Interchange

At Sashabaw Road the event traffic to Pine Knob causes the vehicles exiting from I-75 to back up onto the freeway. Other problems occur at the end of Pine Knob events when traffic tries to get onto the freeway, southbound in particular. The proposal here is to provide two-lane off ramps northbound and southbound and to widen the Sashabaw Bridge

over I-75 to five lanes. A lane will be added on Sashabaw Road northbound up to the entrance to Pine Knob (Figure 2-11).

Dixie Highway Interchange

At Dixie Highway the northbound and southbound freeway entrance ramps would be lengthened to allow for a better merge condition (Figure 2-12).

M-59 Interchange

Finally, the M-59/I-75 interchange is now under separate study to redefine its configuration. While the results are separate from this work, the impact on traffic of such an improvement has been included here. The final design and cost of the M-59 improvements will be incorporated into the final plan for the I-75 Corridor by MDOT when available.

2.2 Arterial Improvements

Based upon an analysis of traffic flow and impact data, a package of arterials has been proposed for improvement to complement I-75's widening (Figure 2-13 and Table 2-1). A key element in the selection of these improvements is the acceptance by the local government affected. So, while technical analysis may show more than the 31 projects may be needed, the plan has been created with an eye on implementation with the greatest amount of local support. And, as other roadways continue to experience congestion, updates of this plan should broaden its scope to allow local communities now concerned about road improvements to reassess their positions.



Figure 2-9
 Proposed I-75 Interchange
 Ramp Extensions

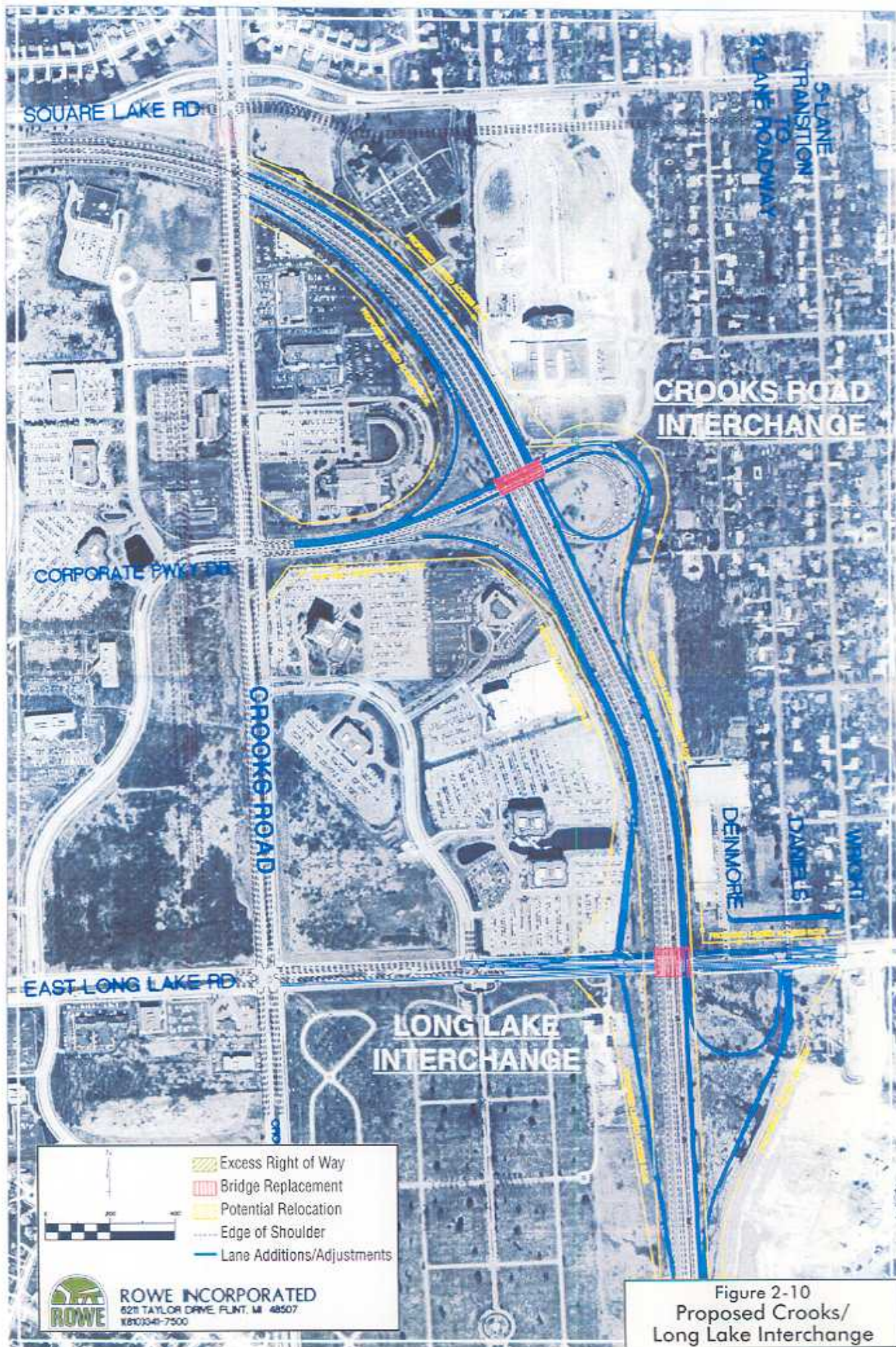
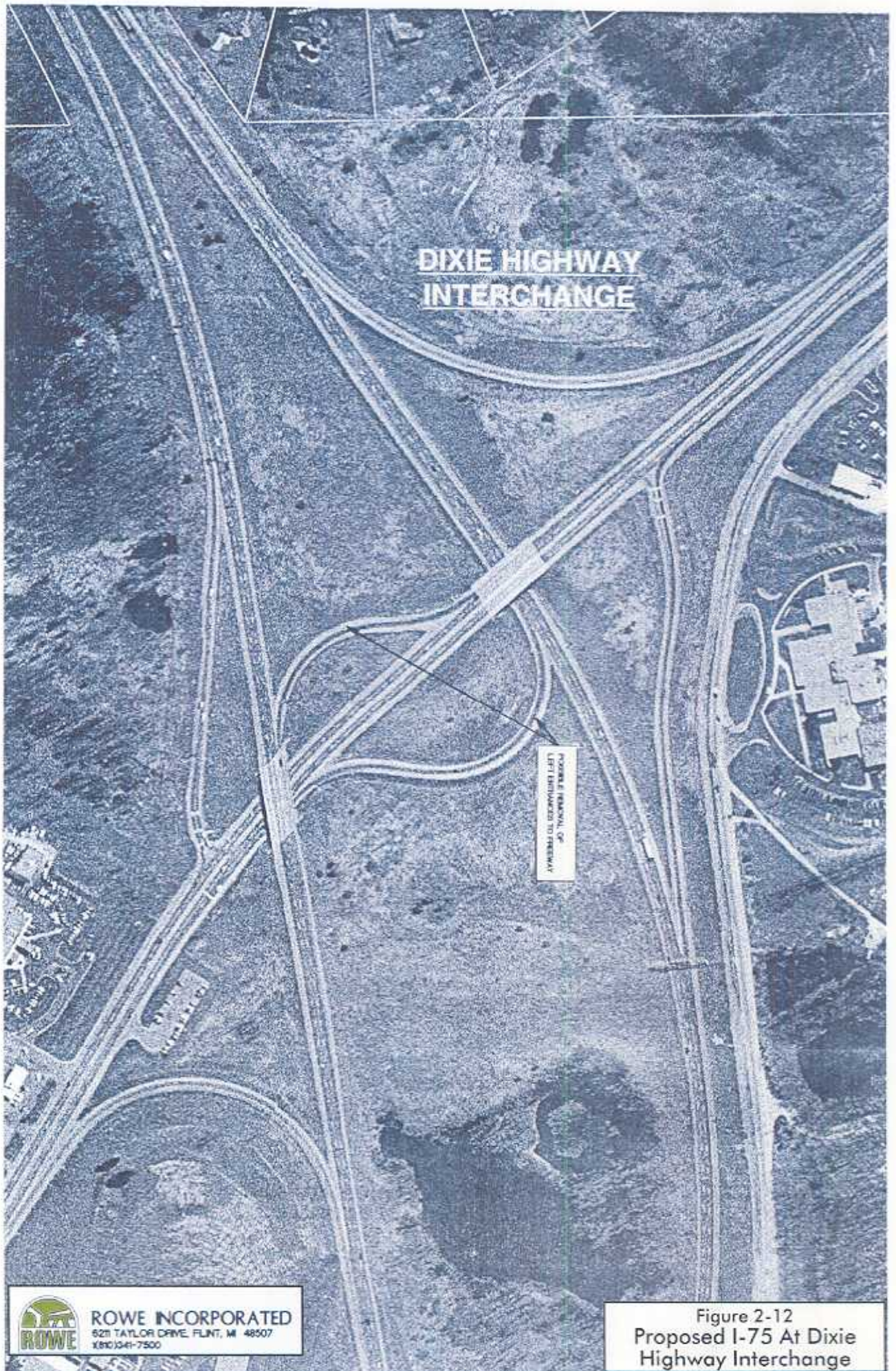


Figure 2-10
Proposed Crooks/
Long Lake Interchange



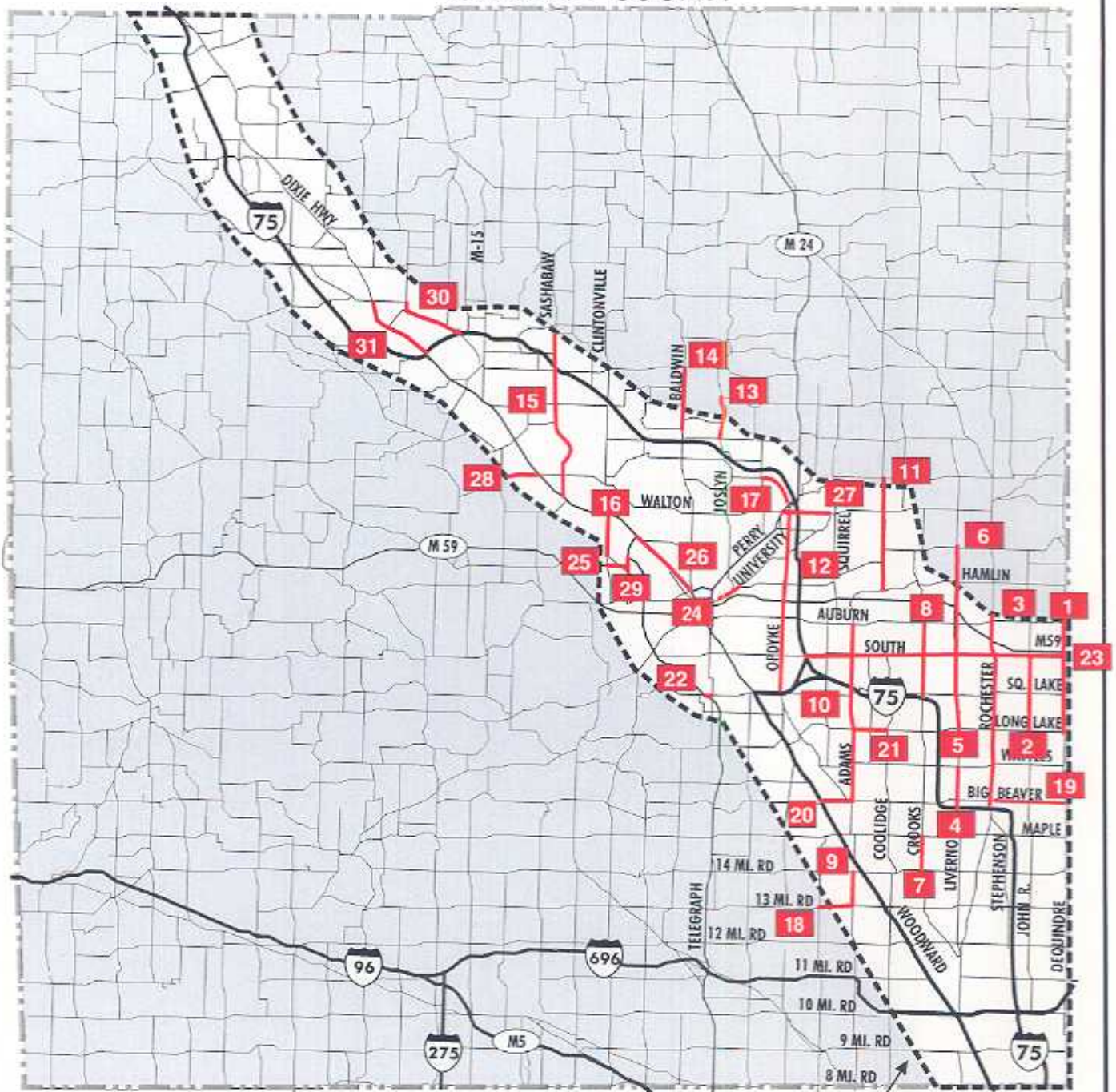
Figure 2-11
Proposed Sashabaw
Road Interchange



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Figure 2-12
Proposed I-75 At Dixie
Highway Interchange

OAKLAND COUNTY



STUDY AREA BOUNDARY

LEGEND

— Arterial Improvements

9 Project Identification



Figure 2-13
All Arterial Projects

Table 2-1
Arterial (Non I-75 Roadway) Improvements – 2025
(Revised June 2000)

	North-South Roads	Limits		Type of Improvement
		From	To	
1	Dequindre	Long Lake	Auburn	Widen to 5 lanes
2	John R Road	Long Lake	South Boulevard	Widen to 5 lanes
3	Rochester Road	North of Big Beaver	Hamlin	Widen to 6 lane boulevard
4	Livernois Road	I-75	Wattles Road	Widen
5	Livernois Road	Long Lake	Square Lake	Widen to 5 lanes
6	Livernois Road	Square Lake	Avon	Widen to 5 lanes
7	Crooks Road	Fourteen-Mile	Maple	Widen to 5 lanes
8	Crooks Road	Square Lake	Auburn	Widen to 4 lane boulevard
9	Greenfield	Thirteen-Mile	14 Mile	Widen to 3 lanes
10	Adams	Big Beaver	Auburn	Widen to 5 lanes
11	Adams	Hamlin	Tienken	Widen to 5 lanes
12	Opdyke	Square Lake	Walton	Widen to 6 lane boulevard
13	Joslyn	Brown	Silver Bell	Widen to 5 lanes
14	Baldwin	Morgan	Waldon	Widen to 5 lanes
15	Sashabaw	Dixie	Clarkston	Widen to 5 lanes
16	Scott Lake	Watkins Lake	U.S. 24/Dixie	Widen to 5 lanes
	East-West Roads			
17	Taylor Road	Gidings Road	M-24	New Road – Extend
18	13 Mile	Greenfield	Southfield	Widen to 5 lanes
19	Big Beaver	Dequindre	Rochester	Widen to 6 lane boulevard
20	Quarton	Woodward	Adams	Widen to 5 lanes
21	Long Lake	Coolidge	Adams	Widen to 5 lanes
22	Square Lake	Telegraph	Franklin	Intersection Improvement
23	South Boulevard	Dequindre	I-75	Widen to 5 lanes
24	S. University Drive	Paddock	MLK	Widen to 5 lanes
25	Pontiac Lake Road	Scott Lake Road	County Center Drive	Widen to 5 lanes
26	Dixie (Oakland)	Telegraph	Woodward	Connector signage/signal timing
27	Walton Boulevard	Perry Street	Squirrel	Widen to 5 lanes
28	Williams Lake Road	Airport	Dixie	Widen to 5 lanes
29	County Center Drive	Pontiac Lake	Telegraph	Widen to 5 lanes
30	Holcomb Road/Bridge Lake Road	Davisburg Road	I-75	Pave 2-lane road
31	Dixie Highway (U.S. 24)	Davisburg Road	I-75	Widen to 5 lanes

Source: The Corradino Group.

While most of the improvements listed on Table 2-1 call for "widening" as the solution incorporated into the analysis of traffic and impacts, it is understood by this plan that further work in cooperation with local governments will define precisely the improvement to be made that yields the most traffic capacity increase with the least negative impact.

It is also noted that paving of Waldon and Maybee Roads is included in the plan to handle traffic between M-24 and M-15 better. But, because they include no widening, they are not included as a major arterial project.

2.3 ITS Improvements

The underlying arterial street system is to be accompanied by further expansion of SCATS (Sidney Coordinated Adaptive Traffic System), and its supporting Autoscope video-imaging system, into the Dixie-Walton and Woodward corridors, the communities south of Troy along I-75, such as Clawson, Royal Oak, Madison Heights, Ferndale and Hazel Park, and other appropriate locations in the county. SCATS involves monitoring approach volumes at intersections and adjusting the timing of traffic signals to give green time to the approach that is experiencing the most demand. Autoscope is a system that detects the presence of a vehicle and effectively monitors the gaps between vehicles that move through the intersection from each approach for each cycle. The system then dynamically adjusts the amount of green time by approach to give the most green time in the next cycle to the approach experiencing the most demand.

MDOT and local jurisdictions continue to study further improvements/extensions of ITS. Possibilities include: expanding and improving the network of communications among ITS components; expansion of changeable message signs to all freeway-to-freeway approaches; and, creating a "hub and spoke" configuration of ITS control, so that not all functions for all areas occur from the downtown control center (with Oakland County as a candidate satellite center). Finally, technology will bring changes such as expansion of in-vehicle telematics and wireless communications that could, for example, offer detour routes. All these are possible for future ITS expansion.

2.4 Ramp Metering

Aerial photographs taken in late April/early May, 2000 combined with field reviews conducted at the same time by a "floating vehicle" and traffic count data provided by MDOT, were the basis upon which a ramp metering analysis was performed. Table 2-2 indicates the hours during which a plan could operate and the number of vehicles (on a per-hour basis) that should be allowed to enter the freeway. The plan can be summarized as follows:

- Nine-Mile Road Northbound On-Ramp: meter from 7:30 to 8:15 a.m. and from 5:15 to 6:30 p.m. daily.
- Eleven-Mile Road Northbound On-Ramp: meter from 7:15 to 8:30 a.m. and from 5:00 to 6:30 p.m. daily.
- Twelve-Mile Road Northbound On-Ramps: meter from 7:30 to 8:00 a.m.

Table 2-2
Ramp Metering Proposal

Northbound	Rate Veh/Hr	Time Period			
		AM		PM	
		From	To	From	To
Nine-Mile	608	7:30	7:45		
	400	7:45	8:00		
	900	8:00	8:15		
	267			5:15	5:30
	268			6:00	6:15
	900			6:15	6:30
Eleven-Mile	900	7:15	7:30		
	716	7:30	7:45		
	900	7:45	8:00		
	900	8:00	8:15		
	900	8:15	8:30		
	316			5:00	5:15
	444			5:15	5:30
	584			5:30	5:45
	546			5:45	6:00
	482			6:00	6:15
	504			6:15	6:30
Twelve-Mile (WB to NB)	256	7:30	7:45		
	364	7:45	8:00		
Twelve-Mile (EB to NB)	565	7:30	7:45		
	592	7:45	8:00		
Southbound	Rate Veh/Hr.	From	To	From	To
Crooks	900			4:00	4:30
	616			4:30	4:45
	900			4:45	6:15
Twelve-Mile (WB to SB)	380	7:15	7:30		
	544	7:30	7:45		
	456	7:45	8:00		
	522			4:00	4:15
	380			4:15	4:30
	478			4:30	4:45
	609			4:45	5:00
Twelve-Mile (EB to SB)	588	7:00	7:15		
	735	7:15	7:30		
	633	7:30	7:45		
	652	7:45	8:00		
	484			4:00	4:15
	608			4:15	4:45
	520			4:45	5:00

Source: The Corradino Group

- Twelve-Mile Road Southbound On-Ramps: meter from 7:00 to 8:00 a.m. and from 4:00 to 5:00 p.m.
- Crooks Road Southbound On-Ramp: meter from 4:00 to 6:15 p.m.

At the Nine-Mile Road and Eleven-Mile Road interchanges, additional storage is needed. The additional storage may be provided either by lengthening the on-ramp and/or widening the ramp to two lanes.

Because reconstruction of I-75 will likely be started in the near future and be ongoing for several years, ramp metering should be readdressed later. It is not included in the I-75 Plan at this time.

2.5 Other Improvements

Previous work in the I-75 Corridor Study indicated that mass transit's potential to provide congestion relief is now limited because the basic infrastructure is still being created upon which to build a successful alternative to the automobile. So, the I-75 Corridor Plan calls for a detailed study of how the transit

infrastructure can be strengthened and then expanded to significantly improve transit's share of travel in the I-75 Corridor. But, that effort must produce significant implementation. Analyses indicate that even if the peak hour auto travel in 2025 were reduced by 10 percent because of transit's improved attractiveness, the type of congestion experienced in the I-75 corridor would be virtually unchanged from the condition where transit attracts no more trips than now expected by the current SEMCOG models (compare Figures 2-14 and 2-15). In other words, a huge shift to transit must occur overnight to reach the conclusion that the I-75 Corridor Plan defined here is not needed or can wait. It can't. It should be noted further, that this plan does not attempt to "build its way out of congestion." The plan includes a reasonable number of projects to ease congestion while respecting the environment in the corridor and the policies and positions of local governments. Help from transit, or other solutions from land management initiatives to road widening to ITS, must constantly be sought to address future transportation demands fostered by increased development throughout the I-75 corridor.

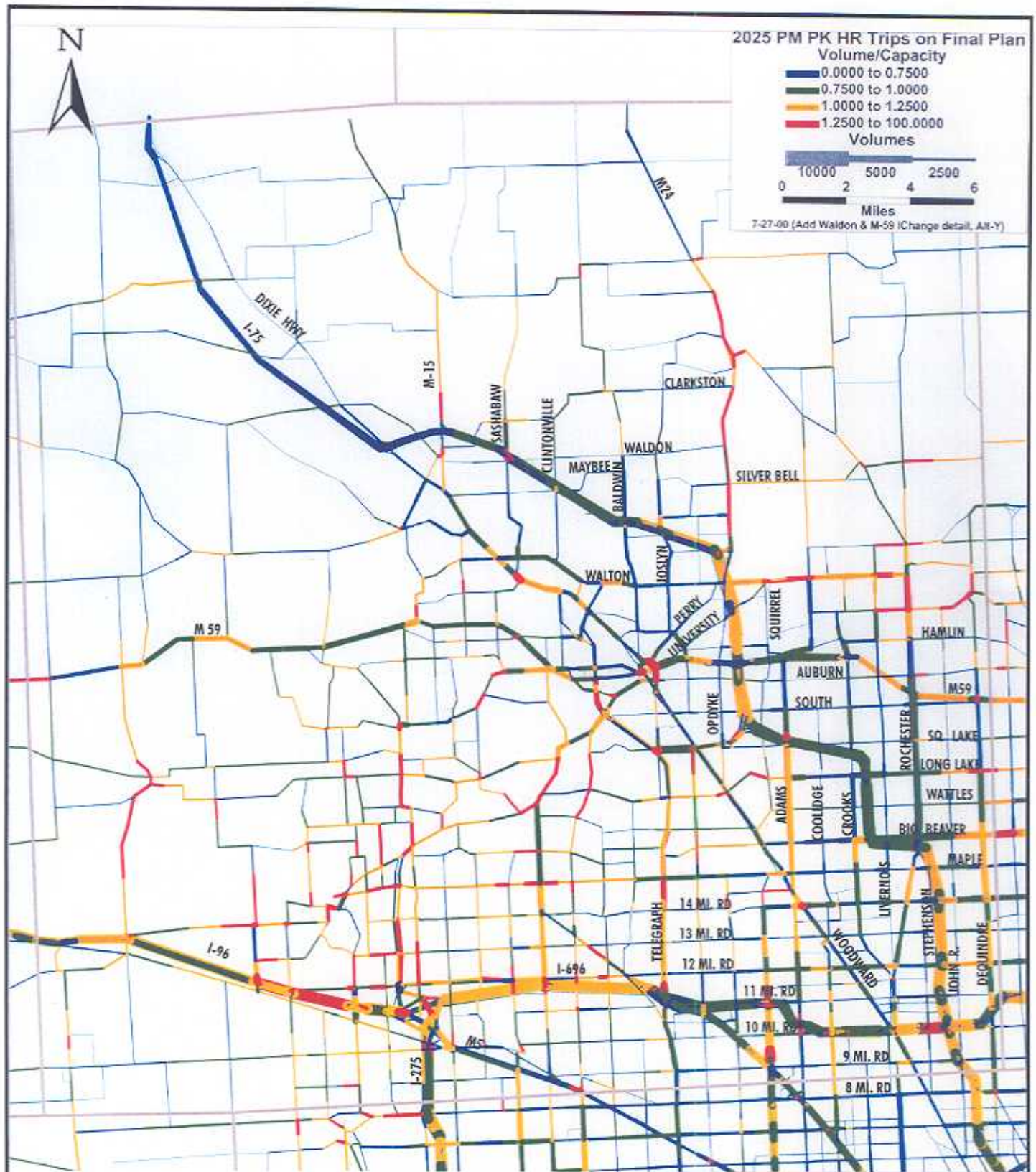


Figure 2-14
Final Plan

SOURCE: The Corradino Group

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Figure 2-15
 Final Plan
 With 10% Reduction in
 2025 PM Peak Hour Trips

SOURCE: The Corradino Group

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3. Impacts of Plan

The systemwide characteristics of the transportation plan are presented on Table 3-1. Overall, the plan provides major relief of congestion on I-75 and throughout the arterial street system. This is particularly evident when comparing peak P.M. hour traffic congestion for the 2025 data under the Existing plus Committed (E+C) system (Figure 3-1) with the plan (Figure 3-2). It is obvious that congestion is controlled; however, it is not eliminated because the plan is practical in the number and type of improvements addressed (i.e., only one lane widening of I-75 where needed to provide four through-lanes; some, but not all, arterials improved). Safety improvements are positive. And, the user savings are estimated in current dollars at \$2.6 billion over 20 years, which is more than double the cost to construct all components of the plan.

It is important to note that Figure 3-2 depicts congestion in the P.M. (afternoon) peak hour (typically 4:30 p.m. to 5:30 p.m.). That depiction calls into question the need to widen I-75 from M-15 north to the county line. But, it's widening is the result of congestion in other peak periods. For example, 1998 traffic count data for the Clarkston/M-15 area were analyzed to check if the capacity of I-75 in northern Oakland County is being exceeded on a regular basis. In the northern part of Oakland County, I-75 has three lanes of travel in each direction. According to SEMCOG

(Highway Capacities by Facility and Area Type from the 2020 Regional Transportation Plan for Southeast Michigan) this freeway would have a capacity of 1,900 vehicles per lane per hour. The three lanes in each direction would have a capacity of 5,700 vehicles per hour.

In the northbound direction there were 41 hours where traffic volumes in 1998 exceeded 5,000 vehicles. All 41 occurred from either 4:00 p.m. to 5:00 p.m., 5:00 p.m. to 6:00 p.m., or 6:00 p.m. to 7:00 p.m. and all but four hours were on Friday nights. Most of this activity is not covered by the P.M. peak hour rush which is the focus of the needs assessment undertaken so far. The 30th highest traffic hour, which most roads are designed to handle, in the northbound direction in 1998 had 5,071 vehicles.

In the southbound direction there were 119 hours during 1998 where traffic volumes exceeded 5,000 vehicles. All of these instances occurred on weekdays and 114 occurred from 7:00 a.m. to 8:00 a.m. The other five occurred from 8:00 a.m. to 9:00 a.m. Again, these are not the predominant peak hours being studied in the I-75 Corridor Project. The 30th highest traffic hour in the southbound direction carried 5,398 vehicles.

By examining the computer forecast for 2025 traffic compared to 1995 count data for the

Table 3-1
Systemwide Plan Characteristics

		Do-Nothing	Draft Plan	
Transportation	Traffic Flow Freeway Link Miles > LOS E	Baseline	-18	
	Local Access Non-Freeway Link Miles > LOS E	Baseline	-75	
	Safety High Accident Locations Addressed	Baseline	Freeway	-4
			Arterial	-46
			-567	
Social	Residential Displacements Number of Res. Units Possibly Taken	Baseline	Freeway	+8
			Arterial	+43
	Community Cohesion Miles of New Local Construction	Baseline	+65	
	Aesthetics Level of Impact	Baseline	Freeway	Negative
			Arterial	Mostly Negative
	Environmental Justice Level of Impact	Baseline	Freeway	No Disproportionate Effect
			Arterial	Two Areas of Potential Impact
Environmental	Noise Number of Residential Units Exposed	Baseline	Freeway	No Negative Effect
			Arterial	+1,671
	Air Quality Level of Impact	Baseline	Freeway	Moderate/Good
			Arterial	Moderate/Good
	Parks Acres Impacted	Baseline	Freeway	0
			Arterial	+13
	Cultural Resources / Historic Properties Number Impacted	Baseline	Freeway	0
			Arterial	+23
Economic	Economic Development	Baseline	System Total	\$2.6 Billion in user savings over 20 years
	Business Displacements Number of displacements (businesses)	Baseline	Freeway	+1
			Arterial	+32
Cost	Construction (millions of dollars)	Baseline	Freeway ¹	\$431 ²
			Arterial	\$387 ²
	R-O-W (millions of dollars)	Baseline	Freeway ¹	\$16.5 ²
			Arterial	\$153 ²

¹Includes interchanges, 12 bridges and noise walls. Does not include M-59 Interchange.

²Year 2000 dollars.

Source: The Corradino Group



Figure 3-1
 E + C/Do Nothing
 2025 PM Peak Hour Trips

SOURCE: The Corradino Group

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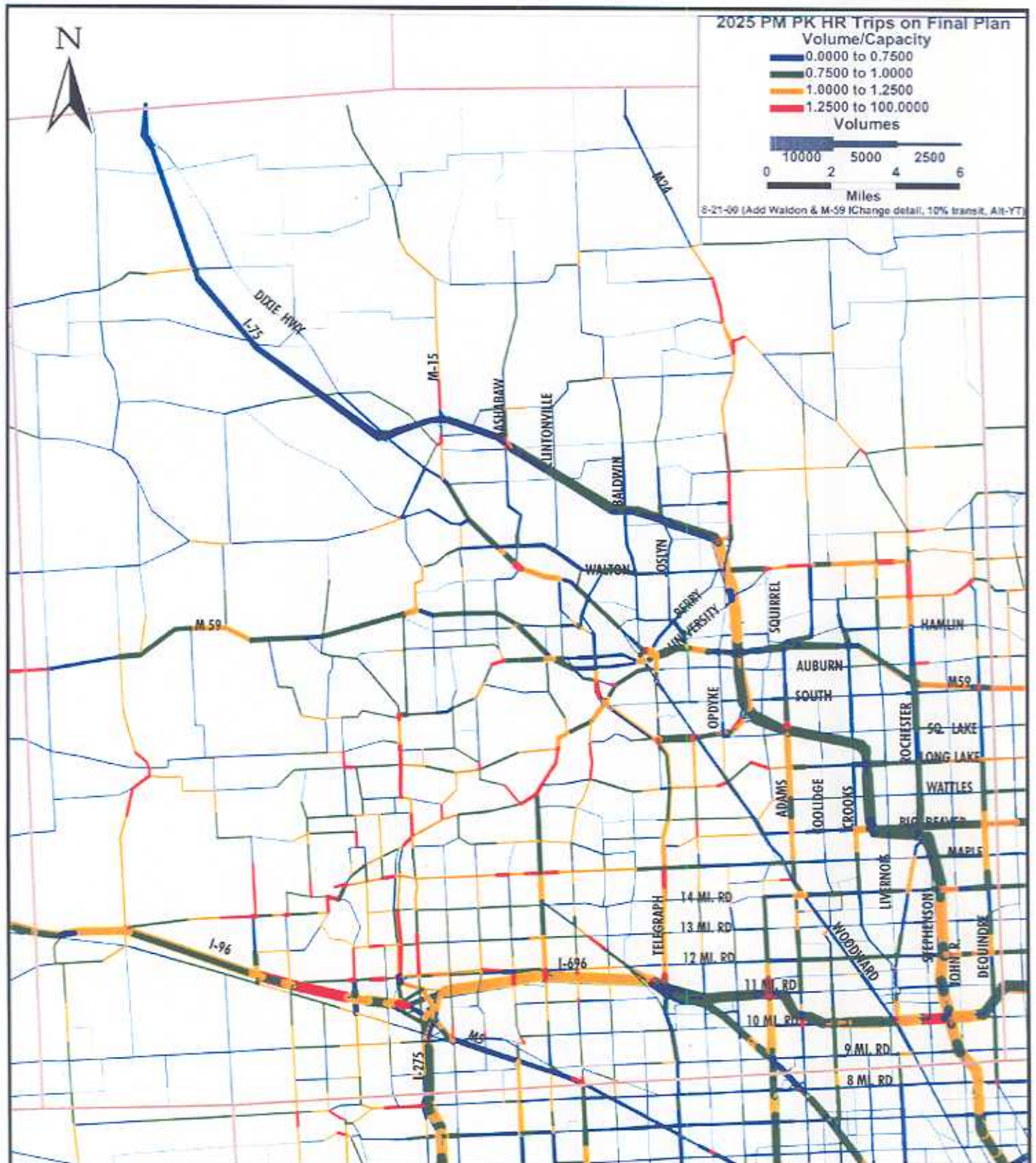


Figure 3-2
 Final Plan
 With 10% Reduction in
 2025 PM Peak Hour Trips

SOURCE: The Corradino Group

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section of I-75 from Sashabow Road to the north county line, a growth factor of 30 percent over 30 years (1995 to 2025) is easily evident. Applying this growth to the 1998 traffic counts produces a forecast of peaking in this section on I-75 at volumes northbound and southbound greater than capacity long before the project's forecast year (probably in the next 10 years). The difference is that these peaks are serving different types of traffic than the model reflects when dealing with the afternoon (P.M.) rush. Nevertheless, the data indicate a need for another lane on I-75 in the northern portion of Oakland County. This would further improve congestion relief shown on Table 3-1.

Confirmation of this forecast is provided by examining Figure 3-3. Growth in MDOT traffic count data in just two years (1996 to 1998) averages 18 percent along I-75 in North Oakland County. So, it appears the forecast that the capacity of I-75 in northern Oakland County will be exceeded in 10 years is conservative.

I-75 Improvements

Social impacts in the form of displacements of residential units possibly taken is listed as 9 for freeway improvements (Table 3-2). These could be avoided when widening I-75 south of Twelve Mile Road by cantilevering the frontage roads over the freeway rather than pushing them out into residential areas. However, the additional width required for the I-696 to I-75 ramp improvement makes unavoidable the taking of these residential units plus one church.

Aesthetic impacts are considered negative for the freeway improvements as green spaces in the median and shoulders would almost all be lost with the widening of I-75.

There are no negative effects expected to be caused to minority or low-income populations because of freeway improvements.

Noise may be considered a potential problem with I-75. But, barrier walls are included in the conceptual design at all residential areas adjacent to the freeway. So, there is likely to be no significant negative impact on these sensitive receptors even with major increases in traffic volumes by the year 2025.

Air quality is expected to be improved as a result of the I-75 improvements. And, in other areas of environmental concern (i.e., parks, cultural resources, wetlands, etc.), there are no negative effects expected.

The cost of improving I-75 is estimated at \$447 million. Of this total, mainline improvements are expected to cost \$385 million. This includes building noise walls and cantilevered construction in the Woodward Heights area to avoid relocations. The cost of interchange improvements is an additional \$62.4 million, which includes \$16.5 million for property acquisition, mostly for the Long Lake/Crooks Roads interchanges. The M-59 interchange improvements will be dealt with separately.

Arterial Improvements

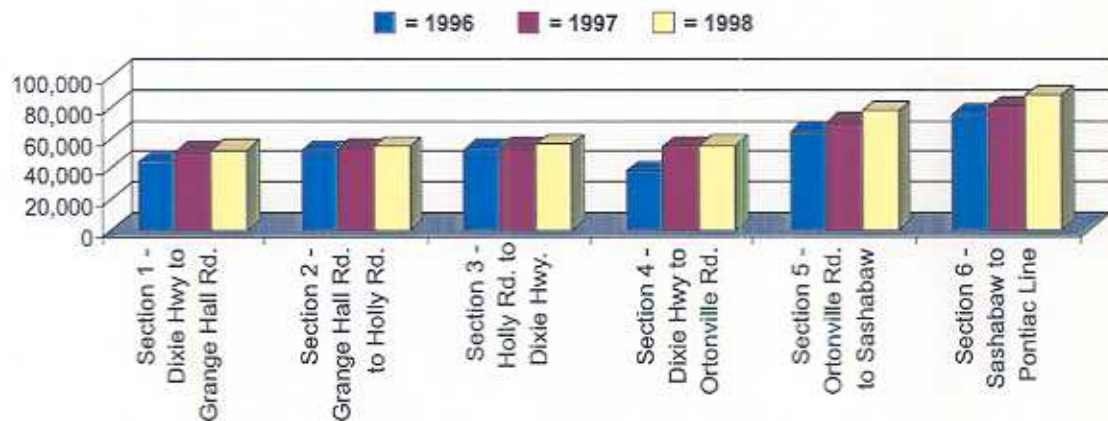
Tables 3-3 and 3-4 list the impacts by arterial road project. Overall, property acquisition is expected to be 43 residential units and 32

Figure 3-3
Growth in I-75 Traffic 1996 - 1998

Annual Average 24-Hour Traffic Volumes
I-75, North Oakland County, 1996 - 1998

I-75 North - South	1996	1997	1998	% Incr. 1996-98
Section 1 - Dixie Hwy. to Grange Hall Rd.	44,500	50,700	52,300	17.5%
Section 2 - Grange Hall Rd. to Holly Rd.	51,100	52,600	54,300	6.3%
Section 3 - Holly Rd. to Dixie Hwy.	51,900	53,400	56,200	8.3%
Section 4 - Dixie Hwy. to Ortonville Rd.	38,300	54,400	55,100	43.9%
Section 5 - Ortonville Rd. to Sashabaw	63,500	69,400	77,200	21.6%
Section 6 - Sashabaw to Pontiac Line	75,400	80,100	88,100	16.8%
Total	324,700	360,000	383,200	18.0%

I-75 Traffic Volume, by Section



I-75 Total Traffic Volume



Annual Average Traffic Volumes, as defined by MDOT, is the average number of vehicles that travel a stretch of I-75, in both directions, in a single 24-hour period.

Table 3-2
I-75 Corridor Study
Freeway Improvements

Evaluation Factors	I-75 Mainline	Interchanges						
		I-696	Twelve Mile	Fourteen Mile	Rochester Road	Long Lake/Crooks Road	Sashabaw Road	Dixie Highway
Trans.								
Safety								
High Accident Locations Addressed	4	0	0	0	0	0	0	0
Residential Displacements								
Number of Res. Units	0	8	0	0	0	0	0	0
Aesthetics								
Level of Impact	Negative	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
Environmental Justice								
Level of Impact	No disproportionate effect	No disproportionate effect	No disproportionate effect	No disproportionate effect	No disproportionate effect	No disproportionate effect	No disproportionate effect	No disproportionate effect
Noise								
Number of Residential Units Exposed	All adjacent residential areas	0	0	0	0	0	0	0
Air Quality								
Level of Impact	Moderate/Good	Moderate/Good	Moderate/Good	Moderate/Good	Moderate/Good	Moderate/Good	Moderate/Good	Moderate/Good
Parks								
Acres Impacted	0	0	0	0	0	0	0	0
Cultural Resources/Historic								
Number Impacted	0	0	0	0	0	0	0	0
Wetlands								
Acres Impacted	0	0	0	0	0	0	0	0
Business Displacements								
Number of Displacements (Businesses)	0	1	0	0	0	0	0	0
Economic								
Construction (millions of dollars)	\$385*	\$1.9	\$11.4	\$11.3	\$0.4	\$17.5	\$3.1	\$0.3
R-O-W (millions of dollars)	\$0.0	\$1.4	\$0.0	\$0.0	\$0.0	\$15.0	\$0.1	\$0.0
Cost								

*Assumes cantilever of service roads to avoid right-of-way acquisition and noise walls.

Source: The Corridor Group